Remarks/ Arguments

In response to the Office Action mailed December 23, 2003, Applicants respectfully request that the Examiner reconsider the objections to the specification and the claims.

Claims 1-26 remain.

Claims 1, 8, 10, 12, 16, 20, and 22 are being amended.

The Examiner states that the specification has various informalities that Applicants believe have now been updated with the amendments to the specification shown above on Page 2.

Claims 1-7, 10, 12, 13, and 20-26 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to point out and distinctly claims the subject matter Applicants regard as the invention. Applicants have amended Claims 1, 12 and 20-22 as requested by the Examiner.

Claims 1-26 stand rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. Applicants have amended the Claims, as set forth above to overcome these rejections. In particular, the Claims now particularly point out apparatus and methods, which result in a physical transformation outside the local apparatus.

Claims 1-3, 6-11, 14-19 and 22-26 stand rejected under 35 U.S.C. § 102(e) as being anticipated by *Miyasaka, et al.* (U.S. Patent 6,304,890) (hereinafter "the *Miyasaka* reference"). Applicants respectfully traverse these rejections.

Anticipation rejections under 35 U.S.C. § 102(e) require identity of invention. In other words, the Examiner has the burden of identifying, *prima facie*, each and every feature of each and every claim rejected as anticipated in a single prior art reference.

The Examiner has failed to meet this burden with regards to the anticipation rejections of Claims 1-3, 6-11, 14-19, and 22-26.

In contrast to the Examiner's statement in Paragraph 7 of the outstanding office action, the *Miyasaka* reference does not teach: (1) partitioning a range of values into a plurality of intervals; (2) determining the interval into which an input value x falls and deriving a normalization factor therefrom; (3) dividing x by the normalization factor to obtain a normalized value x'; (4) computing a value of $x'^{(M/N)}$ for the normalized value x'; and (5) renormalizing by multiplying $x'^{(M/N)}$ by the normalization factor to obtain $x^{M/N}$. Additionally, the *Miyasaka* reference does not disclose adaptive normalization, in which a value retrieved from a look-up table is normalized according to the range in which it falls, such that maximum precision is maintained.

The *Miyasaka* reference teaches a different technique for generating a value $x^{(a/b)}$, in which a and b are integers. See, for example, Example 2 described in the *Miyasaka* reference at Col. 11, Line 6, - Col. 12, Line 63, and Figures 7 and 8. Specifically, a determination is made as to whether an input value x is less than or equal to a threshold value. If the value x is less than or equal to the threshold value, then the input value x is taken as the value x'. Otherwise the value x' is generated by dividing the input value x by a constant such that x" is below the threshold. The value x' is then utilized to access a value z' corresponding to $x'^{(a/b)}$ from a table in memory. If the value z' is below a threshold, the value z' is multiplied by a constant to generate a value z; otherwise the table value z' is taken as the value z. Multiplying the value z by the original input value x generates the final output value.

Given the substantial differences between Claims 1-3, 6-11, 14-19 and 22-26, and the teachings of the *Miyasaka* reference, Applicants respectfully submit that the Examiner has not met his burden of proving a *prima facie* case of anticipation, and therefore that the rejections of Claims 1-3, 6-11, 14-19 and 22-26 should be withdrawn.

Claims 4 and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the *Miyasaka* reference as applied to Claims 1, 16 and 19 above, and further in

view of *Dworkin, et al.* (U.S. Patent 5,604,691) (hereinafter "the '691 *Dworkin* reference"). Applicants respectfully traverse these rejections.

Claims 4 and 11 are not taught or suggested by the *Miyasaka* reference for the same reasons indicated above for Claims 1, 16, and 19. The teachings of the '691 *Dworkin* reference do not remedy the deficiencies. Specifically, the '691 *Dworkin* reference does not teach or suggest generating a value $x'^{(M/N)}$ for a normalized input value x'. Specifically, the '691 *Dworkin* reference only teaches a converter in which coefficients are stored in memory and later retrieved for performing logarithmic and inverse logarithmic operations using series expansions.

Applicants therefore respectfully submit that the rejections of Claims 4 and 21 as obvious in view of the *Miyasaka* and the '691 *Dworkin* references should be withdrawn.

Claims 5, 12, 13, and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the *Miyasaka* reference as applied to Claims 1, 8, 16, and 19 above and in further view of *Dworkin, et al.* (U.S. Patent 5,600,681) (hereinafter "the '581 *Dworkin* reference"). Applicants respectfully traverse these rejections.

Claims 5, 12, 13, and 20 are not taught or suggested by the *Miyasaka* reference for the same reasons indicated above for Claims 1, 8, 16, and 19. The teachings of the '581 *Dworkin* reference do not remedy the deficiencies. Additionally, the '581 *Dworkin* reference does not teach or suggest interpolating between a value $x'^{(M/N)}$ retrieved from memory for a normalized value x'. The '581 *Dworkin* reference only discloses the interpolating between pre-calculated values retrieved from a memory in response to an input signal. The '581 *Dworkin* reference does not teach that normalized values are interpolated.

Applicants therefore respectfully submit that the rejections of Claims 5, 12, 13, and 20 should be withdrawn.

No new matter has been added; the claims have been merely amended to more particularly claim the subject matter Applicants believe is inventive. Applicants

respectfully submit that the Claims as they now stand are patentably distinct over the art cited during the prosecution thereof.

With the addition of no new claims, no additional filing fees are due. However, the Director is hereby authorized to charge any fees or credit any overpayment to Deposit Account Number 23-2426 of WINSTEAD SECHREST & MINICK P.C.
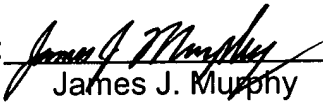
If the Examiner has any questions or comments concerning this paper or the present application in general, the Examiner is invited to call the undersigned at (214) 745-5374.

Respectfully submitted,

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